How to Write a World Class Paper

*From title to references*

*From submission to revision*
Outline: How to prepare a publication

- Why is it so important to write a GOOD paper?
- Why do scientists publish?
- What is a good manuscript?
- How to write a good manuscript
  - Preparations before starting
  - Construction of an article
  - Some technical details that need special attention
  - Language
- Revision and response to reviewers
- Ethical Issues
- Conclusion: what leads to ACCEPTANCE
Why is it important to submit a good article?

Before submitting an article make sure it is *as good as you can make it*.

Because:

→ it makes YOUR life easier
   Your chances of acceptance will be increased.

→ … but also the life of the Editors and Reviewers
   Editors and Reviewers are already overloaded. Incomplete manuscripts create great frustration.
An international editor says…

“The following problems appear much too frequently”

- Submission of papers which are clearly out of scope
- Failure to format the paper according to the Guide for Authors
- Inappropriate (or no) suggested reviewers
- Inadequate response to reviewers
- Inadequate standard of English
- Resubmission of rejected manuscripts without revision

– Paul Haddad, Editor, Journal of Chromatography A
...and my own publishing advice is as follows:

- Submit to the **right journal**
- Submit to **one journal** only
- Do **not** submit “salami” articles
- Pay attention to **journal requirements** and structure
- Check the **English**
- Pay attention to **ethics standards**
- Ask your **colleagues** to proof read the article
- Be **self-critical**
Why do scientists publish?
- What is a good manuscript?
- How to write a good manuscript
  - Preparations before starting
  - Construction of an article
  - Some technical details that need special attention
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What is your personal reason for publishing?

However, editors, reviewers, and the research community DO NOT care about these reasons.
Why do scientists publish?

... to share with the science COMMUNITY something that advances knowledge in a certain field.
Your article should be of value to the research community…

A research study is meaningful **only if**…

It is clear/ understood/ reproducible

→ it is used
Your paper is your passport to your community
Why do scientists publish?

What is a good manuscript?

How to write a good manuscript
- Preparations before starting
- Construction of an article
- Some technical details that need special attention

Revision and response to reviewers

Ethical issues

Conclusion: what leads to ACCEPTANCE
A good manuscript makes readers grasp the *scientific significance* EASILY.

Important are *both*

...the **CONTENT** – useful and exciting

...and the **PRESENTATION** – clear, logical
Why do scientists publish?
What is a good manuscript?

How to write a good manuscript
- Preparations before starting
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- Conclusion: what leads to ACCEPTANCE
How to write a good manuscript

- Preparations before starting
  - Construction of an article
  - Some technical details that need special attention
1. **WHY do you want to publish your work?**

- Have you made a **contribution/solved a problem in your field?**
- Put your work into **perspective** with existing data!
- **Know** the latest results!!
  - Search engines
2. In what form? - type of your manuscript

- **Full articles / Original articles**
  - the most important papers; often substantial completed pieces of research that are of significance.

- **Letters / Rapid Communications / Short Communications**
  - usually published for the quick and early communication of significant and original advances; much shorter than full articles (usually strictly limited).

- **Review papers / Perspectives**
  - summarize recent developments on a specific topic; highlight important points that have been previously reported and introduce no new information; often submitted on invitation.
3. To which audience?

- Identify the sector of readership/community for which a paper is meant.

- Identify the interest of your audience:
  - “Effect of inhaled corticosteroids on small airways in asthma: Investigation using impulse oscillometry” in *Pharmacological Research*? Or better *Pulmonary Pharmacology & Therapeutics*?

- Is your paper of local or international interest?
  - “A bioequivalence study of ibuprofen tablets marketed in Southern Kosovo”
4. Choose the right journal

- Investigate all candidate journals to find out
  - Aims and scope
  - Accepted types of articles
  - Readership
  - Current hot topics

  (go through the abstracts of recent publications)
4. Choose the right journal

**TIP:** Articles in your references will likely lead you to the right journal.

To see what advise Prof. Michael Curtis, Editor-in-Chief of the *Journal of Pharmacological and Toxicological Methods*, gives you for choosing the right journal, click [here](#).
In addition the IF can give guidance but should **NOT** be the sole reason to submit to a journal.

The IF indicates the **cites to recent items / number of recent items (published in a 2 year period)** in a journal.

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**Example:** *Pharmacological Research*

Cites in 2008 to items published in 2007 (= 492) + 2006 (= 389) \(\rightarrow\) = total 881

Number of items published in 2007 (= 132) + 2006 (= 136) \(\rightarrow\) = total 268

\(\rightarrow\) Calculation: Cites to recent items 881 / Number of recent items 268 = 3.287

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What influences the IF?

- **Editorial policies** of journals can influence the number of citations/article, which in turn will influence the IF.
- The **turnover of research** in a certain **field** influences the IF as more recent citations will be made in a very “fast” area like genetics (bare in mind the IF window of two years).
- The **article type** influences the IF, reviews are generally better cited. See graph below.

![Figure 3. Impact Factors and Journal Type](image)

**Journals publishing only review articles have a very high IF.**

**Examples are:**
- Current Opinion in Pharmacology (IF 8.287)
- Pharmacology & Therapeutics (IF 9.443)
Influences on Impact Factors: Subject Area

Median IF per subject category

- CELL BIOLOGY
- ONCOLOGY
- NEUROSCIENCES
- PSYCHIATRY
- PHARMA COLOGY & PHARMACY
- TOXICOLOGY
- RESPIRATORY SYSTEM
- BIOTECHNOLOGY & APPLIED MICROBIOLOGY
- BIOLOGY

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Pharmacology Journals Ranked by Impact Factor 2005

Impact Factor 2005

% of Journals with a higher IF 2005

Pharmacology

Pharmacy
Author versus Journal Impact Factors

Author N.N.:

≈100 original research articles (Reviews excluded)
≈ 50% published in ISI category “Pharmacology & Pharmacy”

Avg. = 3.086
Avg. = 2.637
To hear what Prof. Francesco Visioli, Editor-in-Chief of *Pharmacological Research*, has to say about the IF click [here](#).

Read more about the IF specifically [here](#).

To read more about bibliometrics other than the IF, click [here](#).
DO NOT gamble by scattering your manuscript to several journals. Only submit once!

International ethics standards prohibit multiple/simultaneous submissions, and Editors DO find out!
Apply the Guide for Authors to your manuscript, even to the first draft (text layout, paper citation, nomenclature, figures and table, etc.). It will save your time, and the editor’s.
• How to write a good manuscript
  • Preparations before starting
  • Construction of an article
  • Some technical details that need special attention
The general structure of a full article

- Title
- Authors
- Abstract
- Keywords

Main text (IMRAD)
- Introduction
- Methods
- Results
- And
- Discussion (Conclusions)

Acknowledgements

References

Supplementary material

Make them easy for indexing and searching! (informative, attractive, effective)

Journal space is precious. Make your article as brief as possible. If clarity can be achieved in \( n \) words, never use \( n+1 \).
The process of writing – building the article

This is a very individual process, and you should do it in the way that suits you best. Many find it easiest to start spinning the story starting with figures/tables, the actual data.

1. Figures/tables (your data)
2. Methods
3. Introduction \ Conclusion
4. Title & Abstract

Discussion \ Results
The final article

Work in progress vs. final masterpiece

- **GENERAL**
  - SPECIFIC
    - Introduction
    - Methods, Results
    - Discussion, Conclusion
  - GENERAL
“Effects of a KiSS-1 peptide, a metastasis suppressor gene, on the invasive ability of renal cell carcinoma cells through a modulation of a matrix metalloproteinase 2 expression”
1. Title – what is the paper broadly about?

- Your opportunity to attract the reader’s attention.
- Keep it informative and concise.
- Avoid technical jargon and abbreviations if possible.

To see what Prof. Sam Enna, Editor-in-Chief of *Pharmacology & Therapeutics*, has to say about wording a good title, click [here](#).
2. Abstract – tell the prospective readers what you did and what were the important findings.

- This is the *advertisement* of your article. Make it interesting, and easy to be understood without reading the whole article.

- You must be *accurate* and *specific*!

- A clear abstract will strongly influence whether or not your work is further considered.

- Keep it as *brief* as possible!!!
3. Keywords – mainly used for indexing and searching

- Don’t be too narrow, and neither too broad
- Avoid abbreviations
- Check the Guide for Authors!

**TIP:** Search for your keywords online.

→ Would readers find YOUR article using these keywords?
1. Introduction

Epigenetic modifications are increasingly recognized to play significant roles in both normal cellular physiology and disease processes, particularly in cancer where aberrant gene expression has long been associated with the pathogenesis of diseases. The histone acetylation status, one of the major groups mediating epigenetic modifications, is determined by the opposing actions of histone acetyltransferases (HATs) and histone deacetylases (HDACs). HAT inactivation has been linked to oncogenesis and experimental evidence suggests that the aberrant HDAC activity leads to the transcriptional repression of specific tumor suppressor genes, thus contributing to tumor formation (Marks et al., 2001; Karagiannis and El-Osta, 2006). Actions of HDAC inhibitors (HDACIs) often result in cell cycle arrest, differentiation and apoptosis in numerous transformed cell lines in culture and in vivo (Johnstone, 2002; McLaughlin and La Thangue, 2004; Minucci and Pelicci, 2006).

Therefore, the development of HDACIs as therapeutic agents for cancer treatment has recently been intensified.
4. Introduction – to convince readers that you clearly know why your work is useful

Nevertheless, Vorinostat known as SAHA (suberoylanilide hydroxamic acid) that recently has been approved by FDA for the treatment of cutaneous T-cell lymphoma (CTCL) is not an ideal drug due to its low solubility and permeability classification (class IV), according to the Biopharmaceutical Classification System (BCS), and short half-life in clinical trials (half-life of 120 min for oral administration vs. 40 min for intravenous) (Kelly et al., 2005). Moreover, HDACIs with substantially longer half-lives, such as MS-275 with a half-life of up to 80 h, display higher toxicity profiles (Ryan et al., 2005). Additionally, Valproic acid binds to serum proteins (up to 90% of the absorbed drug) and exhibits low potency (Minucci and Pelicci, 2006).

Growing evidence has also revealed that the hydroxamate group is associated with low oral bioavailability, poor in vivo stability, and undesirable side effects (Mulder and Meerman, 1983; Vassiliou et al., 1999; Suzuki et al., 2005). It has also been shown that the hydroxamate type inhibitor Batimastat promoted liver metastasis in a tumor free mouse model (Kruger et al., 2001). As such, it has become increasingly important to identify replacement groups that exhibit strong inhibitory action against HDACs. Therefore, the design of novel HDAC inhibitors with high oral bioavailability and low toxicity is an absolute necessity in the drug discovery process. Properties of a compound in the early stage of the drug discovery process are of crucial importance. A successful drug-lead candidate must possess...
5. Methods – how was the problem studied

- Include detailed information, so that a knowledgeable reader can reproduce the experiment.

- However, use references and Supplementary Materials to indicate the previously published procedures.
6. Results – What have you found?

3. Results

3.1. Factors affecting entrapment efficiency of flurbiprofen in niosomal formulations

3.1.1. Effect of surfactant structure

To investigate the influence of surfactant structure on flurbiprofen entrapment efficiency, niosomal formulations of different spans were prepared from proniosomes with the same total lipid concentration (100 μmol/ml). Results listed in Table 3 show that Sp 60 has significant higher entrapment efficiency than other span types (P< 0.05). This could be due to the surfactant chemical structure. All span types have the same head group and different alkyl chain. Increasing the alkyl chain length is leading to higher entrapment efficiency (Hao et al., 2002). The entrapment efficiency followed the

<table>
<thead>
<tr>
<th>Flurbiprofen concentration mg/mmol lipids</th>
<th>EE%</th>
<th>% (mg drug/μmol of total lipids)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>55.99 ± 2.28</td>
<td>1.40 ± 0.06</td>
</tr>
<tr>
<td>50</td>
<td>67.04 ± 1.41</td>
<td>3.35 ± 0.14</td>
</tr>
<tr>
<td>75</td>
<td>72.25 ± 2.3</td>
<td>5.41 ± 0.17</td>
</tr>
</tbody>
</table>

Each result is the mean value ± S.D. (n = 3).

Fig. 1. Effect of cholesterol mol% and the method of free drug separation on the entrapment efficiency of flurbiprofen into niosomes. FT/C: freeze thawing/centrifugation. D: dialysis.
6. Results – What have you found?

- Tell a clear and easy-to-understand story.
  - RED THREAD

- Only representative results – but do not hide results!
  - Add Supplementary Materials for data of secondary importance.

- Be structured (sub-headings)
Appearance counts!

- Un-crowded plots, symbols clear to read and data sets easy to discriminate.
- Scale bar on photographs.
- Use color ONLY when necessary.
- Do not include long boring tables!
7. Discussion – What the results mean

- Here you SELL your data!

- Discussion to correlate with results, but don’t repeat results

- Put your results into perspective with previously published data

**ATTENTION:** DON’T ignore work in disagreement with yours – confront it and convince the reader that you are correct
Watch out for the following

- Don’t exaggerate
- Be specific (say “48 degrees” instead of “higher temperature”)
- Avoid sudden introduction of new terms or ideas
- Speculations on possible interpretations are allowed. But these should be rooted in fact, rather than imagination.
- Check logic and justifications
In summary, we have demonstrated that the mercaptoacetamide-based HDACIs possess favorable solubility, lipophilicity, permeability and plasma stability features as compared to recently FDA approved drug Vorinostat (SAHA). Based on these findings, we assume that these compounds could sufficiently be absorbed by the intestinal tract. However, further studies are needed in order to determine the pharmacokinetic disposition of these compounds.
9. References

- Typically, there are more mistakes in the references than any other part of the manuscript.
- It is one of the most annoying problems, and causes great headaches among editors…

  - Cite the **main** scientific publications on which your work is based
  
  - Do not inflate the manuscript with too many references

  **30-40 references** are appropriate for a **full text article**

  - Avoid excessive self-citations
  
  - Avoid excessive citations of publications from the same region
10. Cover letter – your chance to speak to the Editor directly

- View it as a job application letter; you want to “sell” your work…

- WHY did you submit the manuscript to THIS journal?
  - Do not summarize your manuscript, or repeat the abstract

- Mention special requirements, e.g. if you do not wish your manuscript to be reviewed by certain reviewers.
- How to write a good manuscript
  - Preparations before starting
  - Construction of an article
  - Some technical details that need special attention
Some technical details

- Length of the manuscript
- Supplementary Material
- Text layout
- Abbreviations

Check the Guide for Authors of the respective journal for specific instructions.
1. Grammar

→ UK or US spelling? Be consistent!

2. Style

"Everything should be made as simple as possible, but not simpler" (Einstein)

→ Be clear
→ Be objective
→ Avoid imprecise language (nowadays - currently)
→ Be brief
Author names: common problems

- Järvinen = Jaervinen or Jarvinen ?
- Lueßen = Lueben or Luessen ?
- Borchard or Borchardt ?
- Dr. Jaap Van Harten = Dr. Van ???
  - … and what happens if you marry ?

be consistent
Suggest potential reviewers

- Usually **3-6**
- Authors in your subject area (see your references)
- International
- **NOT** collaborators or friends
To avoid early rejection, make the manuscript as good as possible.

- No one gets it right at the first time!
- Write, write, and re-write
- Be self-critical
- Ask colleagues for feedback
Why do scientists publish?
What is a good manuscript?
How to write a good manuscript for international journals
  - Preparations before starting
  - Construction of an article
  - Some technical details that needs special attention

Revision and response to reviewers
  - Ethical issues
  - Conclusion: what leads to ACCEPTANCE
Many journals adopt the system of **initial editorial review**. Editors may reject a manuscript without sending it for review.

Why?

- Peer-review system is **overloaded**

To read what Prof. John Catravas, Editor-in-Chief of *Vascular Pharmacology*, says about the importance of (peer) review, click [here](#).
Revision after submission

Carefully study the comments and prepare a **detailed letter of response**.

Consider reviewing as a **discussion of your work**. Learn from the comments, and join the discussion.
Revision after submission

- Prepare a **detailed** letter of response
  - Copy-paste reviewer comments and address one by one. Don’t miss any point.

- **State specifically** what changes you have made to the manuscript.
  - Give page and line number.
  - *A typical problem* – *Discussion is provided but it is not clear what changes have been made.*

- Provide a **scientific response** to the comment you accept; or a **convincing, solid and polite rebuttal** to the point you think the reviewer is wrong.

- Revise the **whole manuscript**
  - not just the parts the reviewers point out

- **Minor revision does NOT guarantee** acceptance after revision.
  - Do not count on acceptance, but address all comments carefully
... and if the paper has been rejected

• Don’t be desperate – it happens to everybody

• Try to understand WHY, consider reviewers advice

• Be self-critical

• If you want to submit to another journal, begin as if you are going to write a new article.
  • Read the Guide for Authors of the new journal, again and again.
- Why do scientists publish?
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Publish AND Perish! – if you break ethical rules

Ethical rules are **global**

→ in different countries

→ among different publishers
RETRACTED: Matching pursuit-based approach

Available online 24 August 2005.

This article has been retracted at the request of the Editor-in-Chief and Publisher. The article is virtually identical to the previously published article, "Algorithm for SNR Improvement in Ultrasonic NDT", Independent Nondestructive Evaluation International, volume 38 (2005) 453-458 authored by H. Rohlfing, et al.


The article of which the authors committed plagiarism: it won’t be removed from ScienceDirect. Everybody who downloads it will see the reason of retraction...
Ethics Issues in Publishing

Scientific misconduct
- Falsification of results

Publication misconduct
- Plagiarism
  - Different forms / severities
  - The paper must be original to the authors
- Duplicate submission
- Duplicate publication
- Appropriate acknowledgement of prior research and researchers
- Appropriate identification of all co-authors
- Conflict of interest
- Why do scientists publish?
- What is a good manuscript?
- How to write a good manuscript
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What leads to acceptance?

- Attention to details
- Check and double check your work
- Consider the reviewers’ comments
- English must be as good as possible
- Presentation is important
- Take your time with revision
- Acknowledge those who have helped you
- New, original and previously unpublished
- Critically evaluate your own manuscript
- Ethical rules must be obeyed

– Nigel John Cook
Editor-in-Chief, Ore Geology Reviews
Good luck!